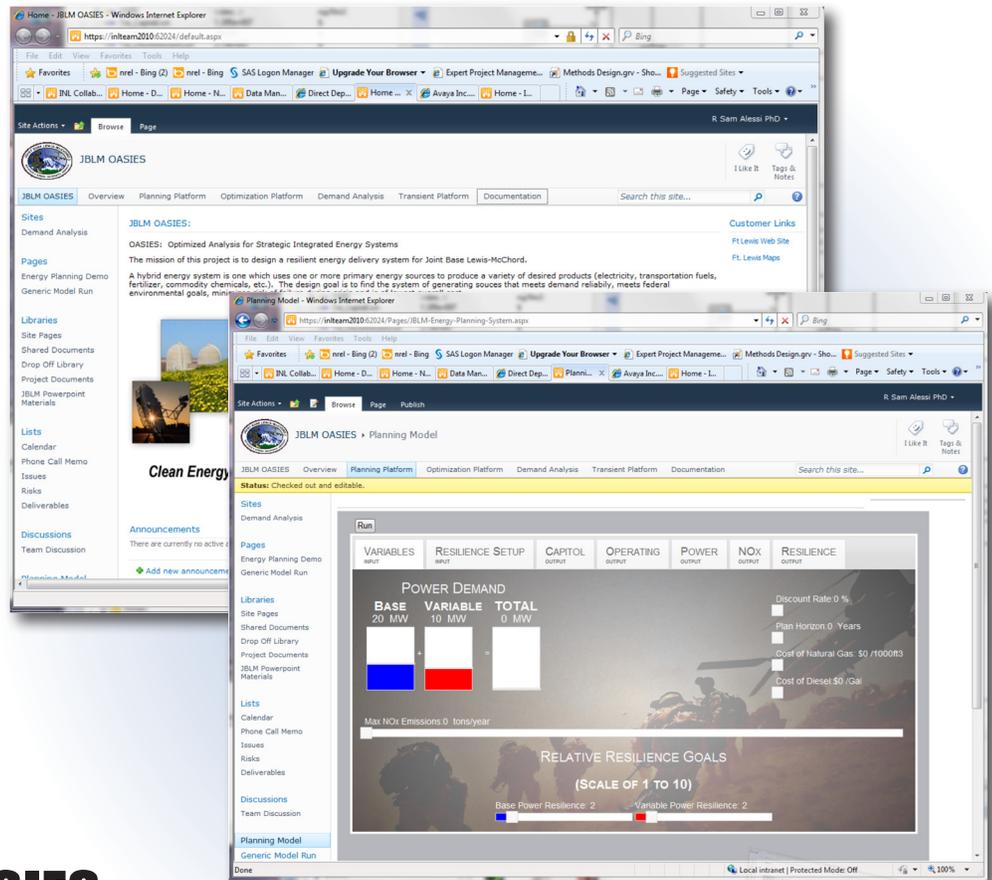


OASIES is a web-based scenario analysis tool used to evaluate the technical and regulatory viability of integrated energy solutions.



## OASIES

### The Optimized Analysis for Strategic Integrated Energy Systems (OASIES) scenario analysis tool

A scenario analysis capability has been developed to provide understanding of the technical and regulatory viability of integrated energy solutions and to help establish the basis for enhancing Department of Defense installation energy security. The Optimized Analysis for Strategic Integrated Energy Systems (OASIES) follows a structured, systematic approach to address applicable technical, economic, environmental, and policy considerations.

OASIES provides the following multiple platforms for creating a viable and cost-effective

site-specific integrated energy system scenario.

#### Planning Platform

The OASIES Planning Platform allows the user to select the technology mix from a variety of technologies identified via a site-specific resource evaluation. The user then inputs required electrical demand levels that the generation mix must match. Then Planning Platform calculates capital and operational costs, emission levels, power, and energy system resilience.

#### Optimization Platform

The OASIES Optimization Platform requires a set of user

defined operational goals.

Then, using an optimization algorithm, selects an appropriate technology mix based on a minimization of costs and emissions, and a maximization of power and energy system resilience. The result is a set of alternative, integrated energy system designs.

#### Transient Platform

Using a set of user defined general goals and hourly electrical demand; the OASIES Transient Platform selects multiple components and simulates component operation to match electrical demand by evaluating objective functions for each unit. The result is a

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candidate HES designed for specified system operation.

Within the OASIES architecture, conventional, renewable, and alternative integrated energy systems are synthesized and analyzed for viability within the boundaries of any installation as well as the surrounding communities. OASIES allows for a flexible and site-specific identification of available energy resources, allowing Department of Defense senior decision makers to make more informed

decisions about their energy system.

OASIES provides analysis of multiple integrated energy scenarios based on site-specific constraints identified within the various energy mandates, policies, and other requirements for the facilities. Flexible models for a variety of unit operations and applicable technologies – bounded by a variety of regulatory, sustainability, economic and policy constraints – are directly integrated. The scenario analysis tool provides a

comprehensive selection and evaluation platform for identifying applicable integrated energy systems.

The INL-developed tool is web-based and available to base personnel. The technical, economic, and environmental knowledge base used to conduct the analysis can be augmented with site-specific information. As policies and directives change, they can be added to the screening tool so that scenarios can be re-evaluated under the new circumstances.

**For more information**

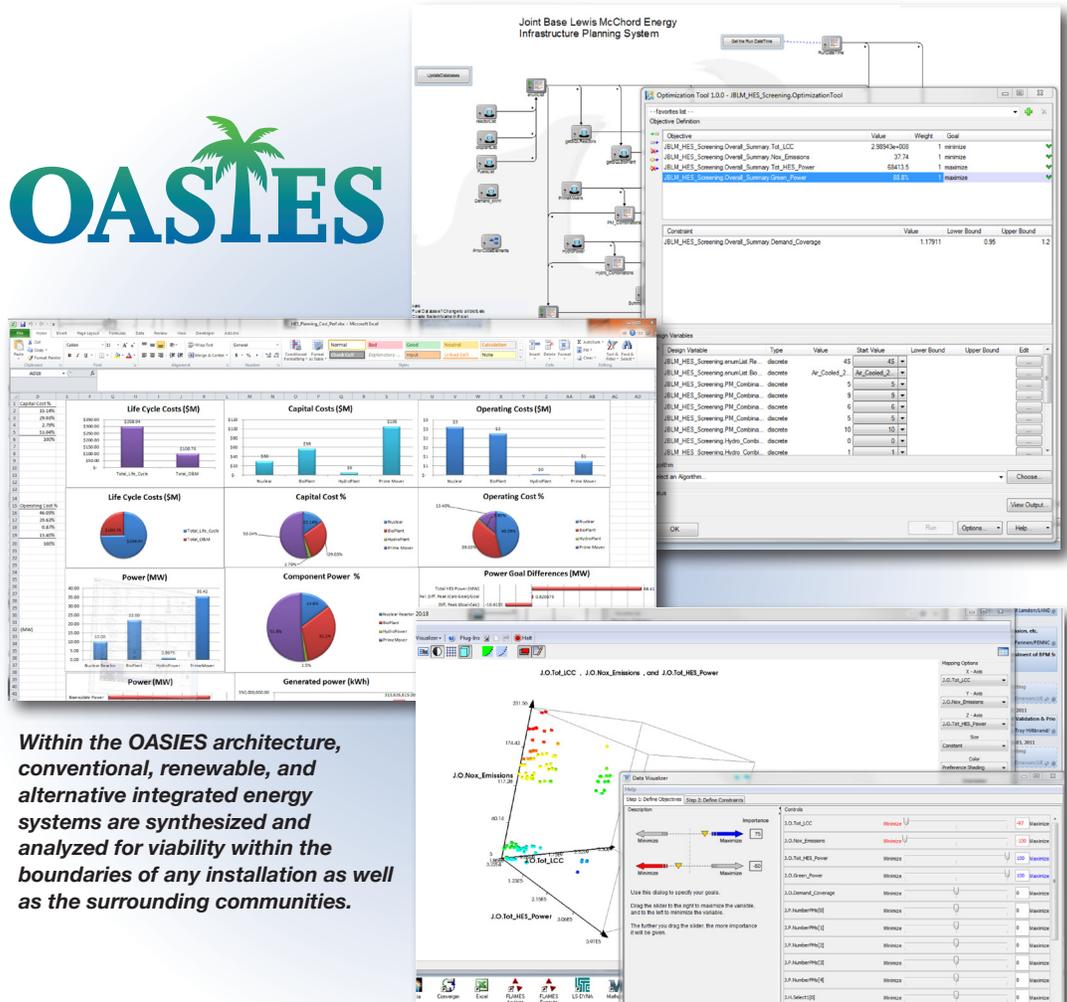
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**Within the OASIES architecture, conventional, renewable, and alternative integrated energy systems are synthesized and analyzed for viability within the boundaries of any installation as well as the surrounding communities.**